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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER	
FAHERTY, COREY S	

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREW BURDASS

Appeal 2009-002029
Application 10/798,890
Technology Center 2100

Decided:[1] June 16, 2009

Before JOSEPH L. DIXON, LANCE LEONARD BARRY, and HOWARD B. BLANKENSHIP, *Administrative Patent Judges*.

DIXON, *Administrative Patent Judge*.

DECISION ON APPEAL

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

I. STATEMENT OF THE CASE

A Patent Examiner rejected claims 9-15 and 24-30. Claims 1-8 and 16-23 have been canceled. The Appellant appeals therefrom under 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6(b). An oral hearing was held on May 20, 2009. We reverse.

A. INVENTION

The invention at issue on appeal relates to a system and method prefetching exception vectors. (Spec. 1.)

B. ILLUSTRATIVE CLAIM

Claim 9, which further illustrates the invention, follows.

> 9. Apparatus for processing data, said apparatus comprising:
>
> a cache memory operable to store program instructions to be executed;
>
> an instruction pipeline including an instruction prefetch unit; and
>
> an exception controller, responsive to an exception signal signaling an exception, for triggering exception processing by forcing program execution starting from an exception handling program instruction stored at a predetermined memory location; wherein upon receipt of said exception signal part way through execution of a current program instruction, said exception controller triggering a lookup of said exception handling program instruction within said cache memory and, if said exception handling program instruction is not present within said cache memory, triggering a cache linefill operation to read said exception handing program instruction from a main memory to said cache memory, and, upon completion of execution of said current program instruction, if said exception is still

current, then said instruction prefetch unit fetches said exception handling program instruction from said cache memory.

C. REFERENCES

The Examiner relies on the following references as evidence:

Nguyen	U.S. 5,481,685	Jan. 2, 1996
Glass	U.S. 5,784,602	Jul. 21, 1998
Birk	U.S. 6,978,350 B2	Dec. 20, 2005 (FILED AUG. 29, 2002)

D. REJECTIONS

The Examiner makes the following rejections.

Claims 9-12 and 24-27 stand rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Birk.

Claims 13 and 28 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Birk in view of Nguyen.

Claims 14, 15, 29 and 30 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Birk in view of Glass.

II. ISSUE

Has the Examiner set forth a sufficient initial showing of anticipation and obviousness of the claimed invention? The issue regarding the independent claims turns on whether Appellant has shown the Examiner erred by failing to identify a teaching of the "if . . . then . . . " portion of the claimed invention.

III. PRINCIPLES OF LAW

35 U.S.C. § 102

"[A]nticipation of a claim under § 102 can be found only if the prior art reference discloses every element of the claim . . . ." *In re King*, 801 F.2d 1324, 1326 (Fed. Cir. 1986) (citing *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1457 (Fed. Cir. 1984)). "[A]bsence from the reference of any claimed element negates anticipation." *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565, 1571 (Fed. Cir. 1986).

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). Analysis of whether a claim is patentable over the prior art under 35 U.S.C. § 102 begins with a determination of the scope of the claim. We determine the scope of the claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). The properly interpreted claim must then be compared with the prior art.

Appellants have the opportunity on appeal to the Board to demonstrate error in the Examiner's position. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006).

In rejecting claims under 35 U.S.C. § 102, "[a] single prior art reference that discloses, either expressly or inherently, each limitation of a

claim invalidates that claim by anticipation." *Perricone v. Medicis Pharm. Corp.,* 432 F.3d 1368, 1375-76 (Fed. Cir. 2005) (citation omitted).

35 U.S.C. § 103(a)

> Section 103 forbids issuance of a patent when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007).

In *KSR*, the Supreme Court emphasized "the need for caution in granting a patent based on the combination of elements found in the prior art," *id.* at 415, and discussed circumstances in which a patent might be determined to be obvious. *Id.* at 415-16 (citing *Great Atlantic & Pacific Tea Co., v. Supermarket Equipment Corp.*, 340 U.S. 147, 152 (1950) and *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966)). The Court reaffirmed principles based on its precedent that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR,* 550 U.S. at 416. The operative question in this "functional approach" is thus "whether the improvement is more than the predictable use of prior art elements according to their established functions." *Id.* at 417.

The Federal Circuit recently recognized that "[a]n obviousness determination is not the result of a rigid formula disassociated from the consideration of the facts of a case. Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not." *Leapfrog Enters., Inc. v. Fisher-Price,*

Inc., 485 F.3d 1157, 1161 (Fed. Cir. 2007) (citing *KSR*, 550 U.S. at 416). The Federal Circuit relied in part on the fact that Leapfrog had presented no evidence that the inclusion of a reader in the combined device was "uniquely challenging or difficult for one of ordinary skill in the art" or "represented an unobvious step over the prior art." *Leapfrog,* 485 F.3d at 1162 (citing *KSR*, 550 U.S. at 418).

One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (citing *In re Keller*, 642 F.2d 413, 425 (C.C.P.A. 1981).

IV. ANALYSIS

35 U.S.C. § 102

With respect to independent claim 9, Appellant's representative at the oral hearing indicated that the claimed invention operates in a specific manner with specific timing as specified in the claim language. Appellant's representative contends that while the instruction has not been completed yet, the system determines whether the exception handling process is located in the cache memory prior to a specific instruction being completed. If the exception process is not located in the cache memory, then the system performs a cache line fill. Subsequent to the completion of the instruction, the exception processing procedure should be loaded into the cache memory. If the exception is still current then the instruction prefetch unit fetches said exception handling program instruction from the cache memory (which was previously loaded by the cache line fill operation).

At the oral hearing, Appellant's representative argued that page 4, lines 6-12 of the Specification identifies the benefits of the claimed "speculative prefetch" as soon as the exception occurs without waiting for the completion of the currently executing instruction.

Appellant argues in the Brief that the Examiner fails to identify where Birk teaches "upon completion of execution of said current program instruction . . . " (App. Br. 7-9). The Examiner indicates that column 2 of Birk supports the rejection of the limitation "if said exception is still current, then said instruction prefetch unit fetches said exception handling program instruction from said cache memory." (Ans. 4). Subsequently at page 8 of the Answer the Examiner maintains that:

> Putting this limitation in its complete context, it is appropriate to determine the following: upon completion of the aborted instruction (meaning, when it was reissued and completed) will the exception still be current? The answer will always be "no"; the exception handler has already run its course.
>
> Therefore, the "if" limitation of the claim is never met by Birk, meaning that the following limitation ("said instruction prefetch unit fetches said exception handling program instruction from said cache memory") is never required by the disclosure of Birk at the time of the aborted instruction's completion. *(emphasis in original).*

(Ans. 8).

Here, the Examiner admits that Birk does not teach the claim limitation for the apparatus recited in claim 9, but the Examiner maintains that the claim limitation is never required by the disclosure of Birk at the time of the aborted instructions completion and therefore this limitation need not be met for Birk to anticipate the claimed invention.

We disagree with the Examiner's position and claim interpretation, and we find that the recited functionality in the "if . . . then . . . " statement must be taught by Birk and furthermore must be present in the claimed apparatus since the machine claim must have all of the recited functionalities whether they are used in every conceivable combination of operations or not. The Examiner seems to discount this claim limitation since Birk teaches to abort the instruction and subsequently reload the process so as to never be current and concludes therefore never requiring the "then" portion of the "if . . . then . . . " limitation.

Additionally, we find that since Birk teaches to abort the instruction, Birk cannot teach the limitation of independent claim 24 "upon completion of the execution of said current program instruction, if said exception is still current, then said instruction prefetch unit fetches said instruction handling program instruction from the cache memory." (App. Br. 4). Since Birk teaches to abort the instruction, Birk cannot teach upon completion of the execution of the current program instruction since it has been aborted and must be reloaded and then would not be "said current program instruction."

Therefore, we cannot sustain the rejection of independent claims 9 and 24 and dependent claims 10-12 and 25-27.

35 U.S.C. § 103

With respect to the Examiner's reliance upon the teachings of Nguyen and Glass, the Examiner has not identified how the teachings of Nguyen and class remedy the above noted deficiency in Birk. Therefore, we cannot sustain the rejection of the dependent claims 13-15 and 28-30 based upon obviousness.

V. CONCLUSION

For the aforementioned reasons, Appellant has shown that the Examiner has not set forth a sufficient initial showing of anticipation and obviousness of the claimed invention.

VI. ORDER

We reverse the anticipation rejection of claims 9-12 and 24-27, and we reverse the obviousness rejection of claims 13-15 and 28-30.

REVERSED.

nhl

NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203